

COLORADO RIVER RECOVERY PROGRAM
FY 99 ANNUAL PROJECT REPORT

RECOVERY PROGRAM
PROJECT NUMBER: 70

I. Project Title: Colorado's Instream Flow Protection

II. Principal Investigator:

Lead Agency: Colorado Water Conservation Board

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III. Project Summary:

IV. Study Schedule:

Although target dates were identified in the 1999 RIPRAP, the withdrawal of the 1995 instream flow filings on the Colorado and Yampa Rivers resulted in changes to these dates (with the acknowledgement of Recovery Program members and Committees). Completion of the 15 Mile Reach PBO will likely assist in redefining task dates for Colorado's instream flow activities.

V. Relationship to RIPRAP:

Colorado River Mainstem Activity Item Numbers: I.A.3.a(1), I.A.3.a(4), I.A.3.b(1), I.A.3.b(4), I.A.4.a(2)(a)-(c), I.A.4.b(2)(a)-(c), I.B.3.a, I.B.3.d, and I.B.4.b(1)-(3).

Yampa River Activity Item Numbers: I.A.4.b(3), I.B.2, I.B.3.a, I.B.3.d, I.b.a.(1)-(3), I.B.5, I.C.3.a, I.C.3.d, and I.C.4.a.(1)-(3).

VI. Accomplishment of FY 99 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

Recent changes to the existing instream flow filings (Case Nos. 5-95CW296 & 595CW297 on the Colorado River, and Case Nos. 6-95CW155 & 6-95CW156 on the Yampa River) occurred at the January and May 1999 CWCB meetings. As a result of concerns expressed by the Service and other Program participants, the CWCB withdrew the baseflow and recovery flow instream flow filings on the Colorado and Yampa rivers. The Colorado Division of Wildlife staff has been instructed to develop new flow recommendations. This process is anticipated to be completed by 2002. Until the new flow recommendations are submitted and approved, the CWCB will review CDOW activities and performance of the PBO and determine the need for instream flow protection needs.

The State of Colorado continues to meet Recovery Goals and maintain Sufficient Progress for the Program. An outline of the Colorado Division of Wildlife's actions toward progress of instream flow protection as a result of the changes in FY 99 are provided at the end of this report.

VII. Recommendations:

It is recommended that the State of Colorado continue to participate in all activities regarding acquisition of flow protection for the endangered fish in the Upper Colorado River basin.

VIII. Project Status:

Colorado's instream flow filings – Since withdrawal of the recovery flow and base flow filings on the Colorado and Yampa Rivers by the Colorado Water Conservation Board, there has been much discussion and uncertainty regarding future instream flow filings for endangered fish in Colorado. Meanwhile a programmatic biological opinion is being developed for the 15 Mile Reach, and other programmatic opinions are expected, including one on the Yampa River. The Committee approved the Management Committee's recommended approach to defer instream flow filings:

- a) on the Colorado River, for 5 years, contingent upon implementation of the programmatic biological opinion;
- b) on the Yampa River, pending completion of a programmatic biological opinion; and
- c) on the Gunnison River, pending outcome of the Aspinall biological opinion and, if needed, a programmatic biological opinion on the Gunnison River.

The RIPRAP will be modified to reflect these issues, including a task to review the need for instream flow filings each year. The State of Colorado has had considerable participation in the development of the 15 PBO, as well as the Coordinated Reservoir Operations, HUP Management efforts and Coordinated Facilities Study (the later 3 being alternative ways to instream flow appropriations for provision and protection of water for endangered fish).

IX. FY 99 Budget Status

- A. Funds Provided: \$150,000 Colorado River Mainstem
 \$ 30,000 Yampa River
 \$ 5,000 Gunnison River
 \$185,000
- B. Funds Expended: \$ 80,000
- C. Difference: \$105,000
- D. % of FY 99 work completed, projected costs to complete: Specific percentages are difficult to provide due to the indeterminate nature of this issue. With completion of the 15 Mile Reach PBO, more explicit goals may be defined. At

this time, the objective of this element should be considered “ongoing”. Flow protection will be continued by the State of Colorado and other Recovery Program members in compliance with the Cooperative Agreement.

- E. Recovery Program funds spent for publication charges: No publication charges to the Recovery Program were made.

X. Status of Data Submission:

Not Applicable.

Colorado Division of Wildlife Instream Flow Methodology Efforts Regarding
Endangered Fishes of the Upper Colorado River Basin

Title: RiverineFish/Flow Investigations

Period Covered: July 1, 1999 - June 30, 2000

Principal Investigator: Richard M. Anderson

Study Goals:

To determine the relationship between flow and habitat availability for the native and non-native fish communities of the Yampa (Job 1), The Colorado River (Job 2) and Dolores River (Job 3).

Study Objectives:

- 1) To model fish habitat availability using both standard hydraulic parameters and techniques (PHABSIM) and methods developed and tested in this study.
- 2) To determine density and biomass estimates for fish and to determine habitat preferences for roundtail chub, flannelmouth and bluehead sucker and certain nonnative species during the base flow period.
- 3) To statistically test relationships believed to exist between habitat availability and fish community structure.
- 4) To develop and propose a new methodology for an ecosystem approach for quantifying instream flow needs of warm water fishes of the Colorado River system.

Work Schedule:

Job I. Yampa River

- A. Set up a new technique for habitat mapping that uses real time GPS with a sonar echo-sounder to produce x, y, z coordinates of the river channel. Obtain necessary software, equipment and training to operate the system. Test the equipment in the field and make necessary adjustments and modifications as required.
- B. Attempt to describe channel morphology at the two study reaches on the Yampa River established in 1998 using the new technique (see A). Compare results of the new mapping system by to those made using an electronic total station in 1998. Surveying will be done during in July and August.
- C. The fish community will be sampled in September at the two study sites. Density and biomass estimates, species composition, size distribution will be determined and compared to results from 1998.
- D. The invertebrate population may be sampled at the two study sites in September depending on budget status. Diversity indices and density estimated will be compare results for 1998 sampling and used in modeling invertebrate population abundance in riffles.
- E. Present results in the annual progress report by July 1, 2000.

Job 2. Colorado River

- A. Set up one or two study sites on the Colorado River for habitat mapping using the technique described in Job 1 A. Begin the habitat mapping process in July 1999. Use the GPS to get ground control points and bathymetry and the total station to get outline of banks, water surface elevation, substrate and velocities over a range of flows. Determine stage discharge relationship at downstream cross sections.
- B. Obtain aerial photographs of the study site(s) for habitat delineation and fish distribution.
- C. The main channel fish population will be sampled in late summer or fall to determine the species composition, density and biomass estimates of native and nonnative fish. Population estimates will be made using mark and recapture methods.
- D. Fish will not be sampled by seining in the 15-mile reach because of conflicts with other studies. However fish data collected by the “seining study” such as, species composition and relative abundance of native species young-of-year, will be available for use in the habitat availability versus fish availability relationship analysis.
- E. The invertebrate population may be sampled at two locations in September, depending on budget status. Diversity indices and density estimated will be used to compare invertebrate abundance to habitat availability.
- F. Present results in the annual progress report by July 1, 2000.

Job 3. Dolores River

- A. Sample the fish population in the late summer or fall at the two study sites, depending on budget status.

Job 4. Title: Technical Assistance

Review reports and instream flow recommendations made by U.S. Fish and Wildlife Service on the sections of the Gunnison, Colorado, and Yampa Rivers that contain endangered fish. Technical assistance will also be provided to DOW instream flow program and the CWCB staff for evaluating instream inflow recommendations for river reaches with native and other warm water species.

Manpower Requirements:

Researcher III	210 days, (full time)
Graduate Student	CSU M.S. student (2-year project supervised by Dr. Ellen Wohl, CSU)
Utility worker I	130 days, (6 months)
Wildlife Tech I	130 days, (6 months)

Cost:

Federal Aid funding:

Job 1 and Job 3 (Yampa and Dolores Rivers)

Researcher Salary	(\$66,000)
Graduate Student (CSU)	(\$19,378)
Temporary time (12mo)	(\$21,022)
Travel (4*45days*50)	(\$7,875)
Operations	(\$16,547)
Aerial photography	(\$2,400)
Invertebrate analysis	(\$2,600)
GPS equipment	(\$4,000)

Yearly cost: \$139,822 THIS IS SEPARATE FROM THE CWCB ESTIMATES.

Cost of next segments

2000	-\$144,600.	Job 2. (Colorado River) and Job 3 (Dolores River)
2001	-\$138,800.	Job 2. (Colorado River) and
2002	-\$138,800.	Job 1. (Yampa River, site in Dinosaur Monument)